

12th Working Group Meeting for

**Proposed Amended Rule 1469 – Hexavalent
Chromium Emissions from Chromium
Electroplating and Chromic Acid Anodizing
Operations**

South Coast AQMD

April 4, 2018

March 4, 2018 Set Hearing for PAR 1469

- Approximately 7 people testified at the Set Hearing for PAR 1469
 - Need for ambient air monitoring
 - Permanent total enclosures (PTE)
 - Phase-out hexavalent chromium for decorative plating
 - Schedule for addressing non-PFOS chemical fume suppressants
 - Additional protections needed for schools
- Based on comments received, Board voted to return to Stationary Source Committee (SSC) for direction if the Public Hearing for PAR 1469 could be set in April

March 16, 2018 Stationary Source Committee for PAR 1469

- At March 16, 2018 SSC Meeting, staff presented issues raised at the March Set Hearing
- Approximately 14 people testified at the SSC Meeting on PAR 1469
- There was not sufficient time for SSC Board Members discussion
 - Mayor Benoit continued the discussion on PAR 1469 to the April 20, 2018 SSC Meeting
 - Staff was asked to provide any additional updates at the April SSC Meeting

Summary of Key Comments from Environmental and Community Representatives

- **Comment #1:** Ambient monitoring should be included in PAR 1469
- **Comment #2:** Require monitoring first; require controls if problems are detected
- **Comment #3:** Concerned about 5% of the building envelope if a Permanent Total Enclosure is required
- **Comment #4:** Phase-out hexavalent chromium if an alternative is available
 - Consider incentives for facilities to switch to alternatives
- **Comment #5:** Certified chemical fume suppressants used to suppress hexavalent chromium are more toxic than hexavalent chromium
 - More compressed schedule needed to assess chemical fume suppressants

Summary of Key Comments Industry Representatives

- **Comment #6:** PAR 1469 should be more protective of communities and schools
- **Comment #7:** Inappropriate for rules staff to act in concert with enforcement staff during rulemaking
- **Comment #8:** “Make Sense” provisions are not necessary
- **Comment #9:** Request for additional examination of source controls and economics

Staff Responses to Comments Received

Staff Response to Comment #1:

Include Ambient Monitoring in PAR 1469

- Staff proposes to address air monitoring through a separate and a more comprehensive rule; Proposed Rule (PR) 1480 – Toxics Monitoring (Fall 2018)
 - More equitable to address exposure from multiple industries/toxics sources
- Incorporating ambient monitoring in PAR 1469 would cause a delay to late 2018
- Many issues need to be resolved for ambient monitoring; better addressed in PR 1480
 - Applicability
 - Appropriate ambient threshold
 - Background concentrations
 - Lack of protocol
 - Limited resources – laboratory and third party consultants
 - Additional provisions for facilities near schools

Staff Response to Comment #2:

Conduct Ambient Monitoring and If Hexavalent Chromium Levels are Not Elevated, No Additional Controls

- PAR 1469 uses monitoring and testing results to require pollution controls on tanks that emit hexavalent – such as the heated sodium dichromate tank
- Relying solely on ambient monitors may not capture issues that occur at a facility
- Often siting a monitor downwind of a source may not be possible – obstacles, siting permissions of off-site, safety and accessibility of the monitor to name a few
- Difficult to capture all sides of a source – generally 2 or 3 monitors and 1 is an upwind monitor
- Ambient monitors help to pinpoint additional source(s) of hexavalent chromium
 - Application of pollution controls for these sources is needed
 - Even though an ambient monitor near a facility with the same source may not be elevated, that monitor at that facility may not be located in the optimum location – but community may still be impacted

Staff Response to Comment #3:

If a Permanent Total Enclosure is Required, Allowing Openings up to 5% of the Building Envelope is Too High

- Modify PAR 1469 to limit the openings for a Permanent Total Enclosure to 3% of the building envelope
- Openings are needed for air intake

Staff Response to Comment #4: Hexavalent Chromium Should be Banned When Alternatives are Available

- Ban under EU REACH* program has provisions allowing continued use of hexavalent chromium which are very broad
- Authorisations (i.e. exemptions) are allowed for up to 12-year “review” period to identify alternatives
 - Faucet manufacturer was allowed 12 years
 - Potential for additional time after initial review period
 - Requester does not need to demonstrate critical need for application
 - Authorisations are broad – includes all downstream users
- Criticism of ban: manufacturers will simply move to developing nations - harming EU economies
- EU definition of functional decorative plating is very broad

*Registration, Evaluation, Authorisation and Restriction of Chemicals

Staff Response to Comment #4: (Continued)

Hexavalent Chromium Should be Banned When Alternatives are Available

- Consideration of any ban is better addressed at State level
 - Level playing field for all facilities within California
 - Local businesses forced to use alternatives lose ability to compete statewide and nationally with facilities plating with hexavalent chromium
- Alternatives may have limitations
 - Trivalent plating has limited applications
 - Trivalent plating cost, color, hardness, and corrosion resistance
 - Customer preference for hexavalent plating
 - Coatings containing chrome are toxic (thermal or ambient temperature sprayed)

Staff Response to Comment #4: (Continued)

Hexavalent Chromium Should be Banned When Alternatives are Available

- Staff conducted initial investigation of trivalent plating
 - 4 trivalent platers within South Coast – staff conducted 2 site visits
 - Discussion with Valley Chrome in Fresno
 - Discussion with trivalent chemical supplier (PAVCO)
- Initial comparisons of trivalent and hexavalent plating
 - Lower toxicity
 - Slower plating time
 - Bath is more sensitive to metallic contamination (Ni, Fe)
 - Less protection in low current-density areas
 - Does not passivate in hard to reach areas like hexavalent chromium plating
 - Required new paint department at Valley Chrome Plating
 - Color is not the same as hexavalent chromium and may be less stable over time
 - More expensive chemistry

Staff Response to Comment #4: (Continued)

Hexavalent Chromium Should be Banned When Alternatives are Available

- Advantages of trivalent plating
 - Lower current density needed
 - Can fit more parts on rack
 - Don't need to treat wastewater
 - Lower scrap factor – i.e. fewer plated parts need to be scrapped or reworked
- Trivalent plating currently limited to niche markets
 - Furniture hardware
 - Hand tools (Snap-On, Craftsman)
 - Aftermarket motorcycle and automotive parts
 - Door hardware
- Motorcycle manufacturers and kitchen fixture manufacturers prefer hexavalent plating due to color

Staff Response to Comment #4: *(Continued)* Alternative to Hexavalent Chromium Sealing

- CHEMEON presented TCP-HF, an alternate to dichromate seal chemistry
 - Removes hexavalent chromium from sealing operation
 - Potential MIL-SPEC alternative to replace hexavalent chromium for heated sealing process
 - Manufacturer is in discussion with aerospace Primes
 - Process temperature is lower than dichromate seal, nickel acetate seal, or hot water seal

Staff Response to Comment #4: *(Continued)*

Hexavalent Chromium Should be Banned When Alternatives are Available

- Staff Recommendation:
 - Include Resolution language to conduct a pilot study and technology assessment for alternatives to hexavalent chromium for all applications
 - Report back to the Board within 2 years on findings and any non-toxic alternatives to hexavalent chromium plating and anodizing processes
 - Provide recommendations for rule changes, if appropriate
 - Support statewide efforts to phase-out hexavalent chromium, where appropriate
 - Staff will work with stakeholders to seek funding sources to help move facilities towards non-toxic alternatives to hexavalent chromium plating and anodizing processes
 - Staff will continue to work with stakeholders to identify feasible non-toxic processes

Staff Response to Comment #5: Certified Chemical Fume Suppressants are More Toxic Than Hexavalent Chromium

- OEHHA reviews of non-PFOS Chemical Fume Suppressant not conclusive with regard to health effects
 - Interim Reference Exposure Level (iREL) for one non-PFOS Chemical Fume Suppressant (6:2 FTOH) shows chronic hazard index many times lower than for hexavalent chromium
- SCAQMD will conduct source tests to determine emissions of Chemical Fume Suppressant

Staff Response to Comment #5: (Continued)

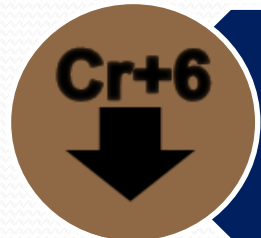
Certified Chemical Fume Suppressants are More Toxic Than Hexavalent Chromium

Challenges with Banning Chemical Fume Suppressants



Affects Lowest Throughput Facilities

In 2003 Rule 1469 allowed use of certified chemical fume suppressants as a low-cost alternative to reduce the financial burden for smaller businesses



Chemical Fume Suppressants are Effective at Reducing Hexavalent Chromium Emissions

Emissions testing has shown chemical fume suppressants can achieve a 99% reduction in hexavalent chromium emissions



Ban Would Have Significant Cost Impacts on Smaller Businesses

Add-on air pollution controls ~\$160,000 (average)
Discontinue plating/anodizing operations or use other chemicals



No Data on Exposure Impacts

Emissions testing is needed to understand exposure impacts of fume suppressant

Staff Response to Comment #5: *(Continued)*

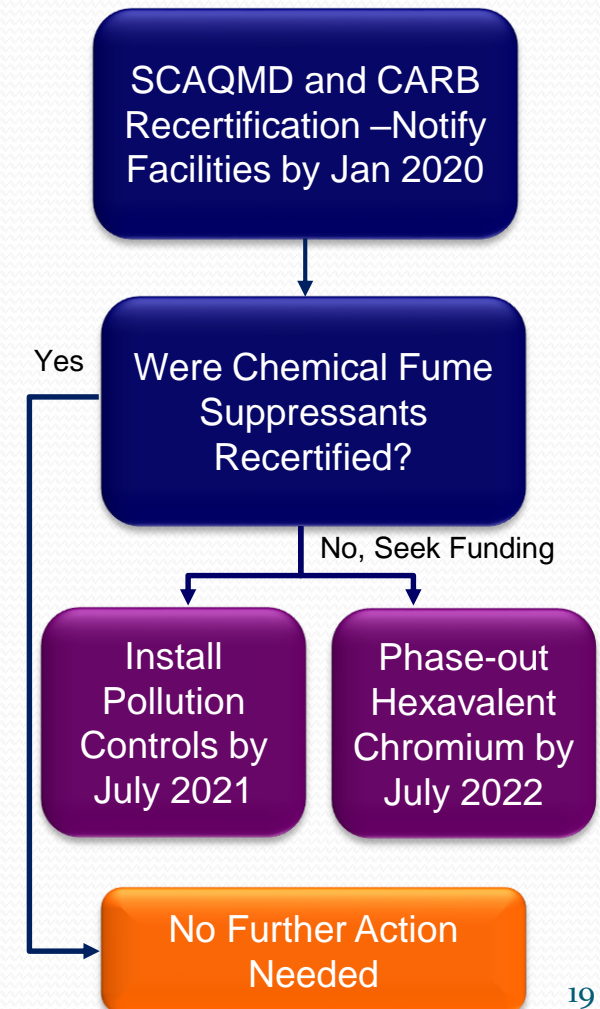
Certified Chemical Fume Suppressants are More Toxic Than Hexavalent Chromium

- PAR 1469 will commit staff to conducting emissions testing of CFS to understand exposure impacts
- Steps to re-certifying CFS:
 - Develop testing protocol
 - Identify host facility - or multiple facilities for emissions testing
 - Conduct testing for multiple CFS and processes
 - 4 CFS currently certified
 - 3 processes (decorative plating, hard plating, chromic acid anodizing)
 - Review and finalize test results
 - Partner with CARB, possibly EPA
- CFS recertification difficult within 1 year, 18 months more likely
 - May be possible to accelerate time frame for high amp-hour facilities

Staff Response to Comment #5: (Continued)

Certified Chemical Fume Suppressants are More Toxic Than Hexavalent Chromium

- Staff Recommendation:
 - Include commitment in Resolution to further review of toxicity and conduct emissions testing to understand exposure impacts
 - Considering accelerating deadlines:
 - Accelerate Chemical Fume Suppressant re-certification and SCAQMD notification to facilities to 18 months to January 2020 (reduced 6 months)
 - Accelerate requirement to install controls by 18 months if Chemical Fume Suppressants not re-certified
 - Installation of Pollution Controls moved from July 2022 to July 2021 (reduced 12 months)
 - Phase-out of Hexavalent Chromium moved from July 2023 to July 2022 (reduced 12 months)
 - SCAQMD staff is investigating feasibility of further reducing time to conduct re-certification
 - Include Resolution language to seek funding for smaller facilities if CFS are not re-certified to help offset costs to install pollution controls or transition out of hexavalent chromium



Staff Response to Comment #6: Should Be Protective of Community and Schools Near Rule 1469 Facilities

- Staff proposal for further protection of schools:
 - Maintain distance of 100 feet for building openings facing a sensitive receptor that must be closed
 - Increase distance to 1,000 feet for building openings facing a school that must be closed
 - Reduce failure rate from 2 incidences within 48 months to 1 incidence within 48 months if facility is located within 1,000 feet from a school as a trigger to install PTE if:
 - Facility fails to shut down a tank after failing APC system parameter monitoring, or
 - Facility fails a source test
- Proposed revisions provide additional protection for schools located near a facility

Staff Response to Comment #7:

Inappropriate for Rules Staff to Work in Concert with Compliance Staff During Rulemaking

- Rules staff conducted site-visits independent of Compliance staff
- Enforcement activities taken by Compliance staff are separate from rulemaking
- Compliance staff helped conduct facility surveys
 - Owner or operator voluntarily completed survey at the request of MFASC
- During site visits, Rules staff reported non-compliant activities observed to Compliance staff for follow-up
- Compliance staff does participate in the rulemaking
 - Provides input to ensure rule is enforceable
 - Provides input to Rules staff regarding provisions to reduce exposure to hexavalent chromium

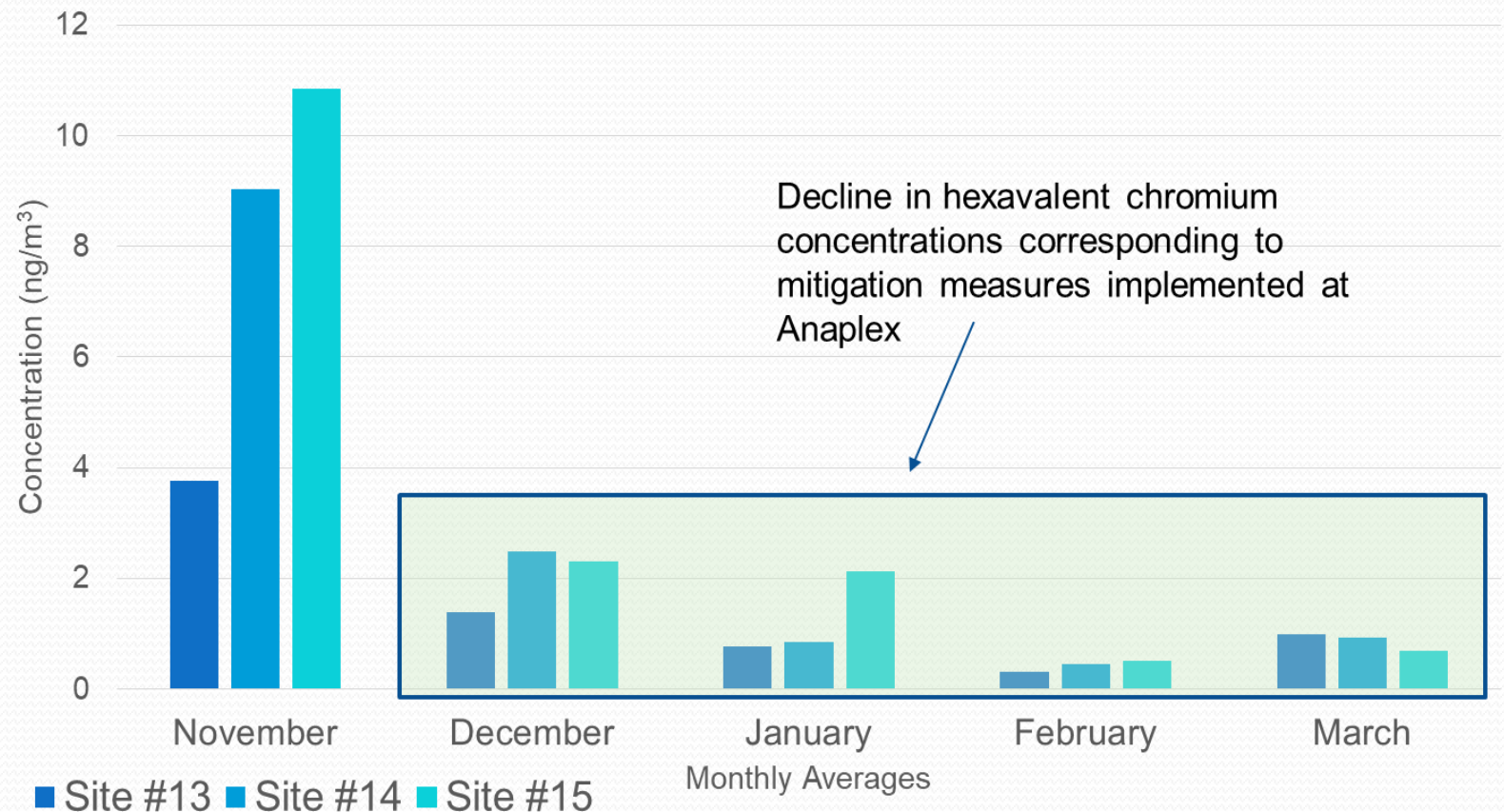
Staff Response to Comment #8:

“Make Sense” Rule Provisions are Not Based on Science

- PAR 1469 includes provisions that although staff has not specifically quantified, implementing measures to reduce fugitive emissions have been effective at other facilities to reduce ambient concentrations
 - Replacing floorings that are made of fabrics such as carpets and rugs where hexavalent chromium containing materials is to reduce track out
- Specific provisions for the building enclosure have been added to minimize fugitive emissions since PAR 1469 does not require a PTE with negative air
 - Prohibit devices that pull unfiltered air out of building that are within 30 feet of a Tier III Tank
 - Limitations for openings within 15 feet of a Tier II or III Tank
 - Limitations for openings near schools or sensitive receptors

Anaplex – SCAQMD Ambient Monitoring (Hexavalent Chromium)

- Anaplex interim measures demonstrated immediate results in reducing monitored concentrations of hexavalent chromium when:
 - Closing doors to minimize cross draft
 - Using temporary tank covers
 - Performing daily cleanup activities in tank process areas



Staff Response to Comment #9: Further Examine of Source Controls and Economics

- Staff has obtained quotes for add-on control equipment
- Staff has worked with MFASC consultant regarding the cost of compliance with proposal
- Staff will be releasing a Socioeconomic Impact Assessment detailing the cost of each requirement

Revisions to Preliminary Draft Rule Language

Requirements (d)

- Stakeholders requested that the freeboard requirement apply to process line and not an individual tank
- Staff modified rule language to maintain a tank freeboard height for a process line that is installed or modified after the date of rule adoption

Requirements for Building Enclosures for Tier II and Tier III Hexavalent Chromium Tanks (e)

- Staff modified rule language:
 - Limit openings that can be open for the passage of vehicles, equipment, or people not to exceed two hours
 - Maintain distance of 100 feet for building openings facing a sensitive receptor that must be closed
 - Increase distance to 1,000 feet for building openings facing a school that must be closed

Conditional Requirements for Permanent Total Enclosures (t)

- Trigger for a Permanent Total Enclosure with a Tier III Tank:
 - Two incidents of conducting a non-passing source test within a consecutive 48-month period; or
 - Two incidents within a consecutive 48-month period of failing to cease operating a tank controlled by an add-on air pollution control device or non-ventilated add-on air pollution control device due to:
 - Failed measurement of the collection system; or
 - Failed smoke test
 - If facility is located within 1,000 feet of a school, one incident of failing to cease operating a tank after a failed measurement of the collection system or smoke test

Next Steps

- SSC Meeting – April 20, 2018
- Release of 30-day Documents – May 2, 2018 (tentative)
 - Draft Rule Language
 - Draft Staff Report
 - Draft Socioeconomic Assessment
- Set Hearing – May 4, 2018 (tentative)
- Public Hearing – June 1, 2018 (tentative)

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